

March 9, 2007

MEMORANDUM

TO: Mr. Steve Murray, P.L.S. - Tippecanoe County Surveyor

FROM: David W. Eichelberger, P.E. - CBBEL, Indianapolis

PROJECT: **Winding Creek Subdivision, Sections 5 and 6**
CBBEL Project No. 02-038 (FX)

DEVELOPER/OWNER: **Winding Creek, LLC**

LOCATION: **(Section 5)**
40° 30' 10" Latitude
-86° 53' 49" Longitude
(Section 6)
40° 29' 41" Latitude
-86° 54' 29" Longitude

RECOMMENDATION: **Final Approval with Conditions**

Separate tracts of land within the Winding Creek Subdivision property will be developed to provide an additional 11 residential lots on 9.58 acres (Section 5) and 50 lots on 23.8 acres. The project sites are located south of County Road 600 north and west of County Road 75 East in Tippecanoe Township. Sections 5 and 6 will be developed adjacent to previously completed sections of the overall subdivision, which borders an 18-hole golf course known as Coyote Crossing. Storm sewer systems will be installed to convey stormwater primarily to ponds designed for developed-condition runoff, as previously analyzed in a master drainage report titled "Winding Creek Subdivision – Tippecanoe County, Indiana". However, some portions of these residential areas will drain uncontrolled to Burnett Creek (Section 5) and Cole Ditch (Section 6).

Based on information available to CBBEL, it does not appear that any Tippecanoe County Regulated Drain exists at or near the project site. There are no regulated drain encroachments or crossings proposed with this development. As previously noted, runoff from Sections 5 and 6 eventually discharges to Burnett Creek and Cole Ditch, respectively. The project sites are within the Tippecanoe County MS4 Area, and are not located within a 305(b) Priority Watershed.

This project was previously reviewed in memorandums dated December 22, 2006, February 1, 2007, and March 2, 2007. After a review of the most recently provided information, CBBEL recommends final approval of the stormwater management plan with the following conditions:

Variances/Encroachments

The February 1, 2007 review memorandum indicated that, per Chapter 6, Section C.12 of the Standards, no portion of lots 310 and 311 may be used for any part of a detention basin or for the storage of water, either permanent or temporary. In addition, during a meeting with the applicant on February 7, 2007, the Tippecanoe County Surveyor requested additional information from the applicant to verify that the existing pond meets Ordinance criteria relative to pond slopes, ledges, and related issues. The Surveyor also requested narrative and photographic documentation of the condition of the pond outlet, the pond embankment, and the emergency routing flow path from the pond.

The applicant has responded by indicating that the existing pond pre-dated the master plan prepared in 1998. The Section 8 plan prepared in 2001 refers to an existing lake created by berming a ravine, but gives no further details. Therefore, the applicant could find no documentation to verify that the existing pond meets Ordinance criteria relative to pond slopes, ledges, and related issues. The applicant has provided photographic documentation of the condition of the pond outlet, the pond embankment, and the emergency routing flow path from the pond. There is no narrative documentation of the condition of the existing pond outlet or the pond embankment. The applicant has indicated that "Vester and Associates makes no representation regarding the dam condition and presents this information as requested for purposes of obtaining approval of the Drainage Board. Dam integrity and seepage conditions are beyond the expertise of Vester and Associates to evaluate."

The applicant is requesting two variances. The first variance is to permit lots 310 and 311 to extend into the pond. The second variance is to allow the project to discharge to an existing pond that is not documented to meet the Ordinance criteria relative to slopes, ledges, and related issues. In support of these requests, the applicant will leave in place the existing thick vegetation bordering the pond on lots 310 and 311, to discourage approach to the pond. In addition, a fence will be placed along the tree perimeter to further discourage approach. The 100-year flood limits in the pond, the trees, and the fence will be placed in a permanent easement to permit future access by maintenance personnel and to assure that the trees and fence will not be removed.

Section 5 Stormwater Quantity

The proposed stormwater quantity plan for Section 5 appears to be in substantial compliance with the Ordinance and Standards.

Section 6 Stormwater Quantity

1. The applicant should review pad elevations, breakout elevations, and height above overflow path values listed in the Emergency Routing table included on the emergency routing sheets. Several values have changed in this table and do not correlate with the current grading plan and pad elevations.
2. The applicant should review the proposed grading between lots 270 and 271. There is no positive outlet for the southwest corner of lot 271, as the proposed 661.0 contour will not allow runoff to drain to the east. Instead, runoff will pond in the southwest corner of lot 271, until it breaks to the north.

3. The March 2, 2007 review memorandum noted that the overflow elevation between lots 275 and 276 should be low enough that the placement of the proposed fill for the subject development does not cause ponding of water on the adjacent Tippecanoe County Commissioners property to the west. It appears that, based on sheet 9 of the construction plans (existing conditions), the existing breakout elevation for the depressional area on the site is 656.1 feet. The proposed breakout elevation between lots 275 and 276 is approximately 658.5 feet, over 2 feet higher than the existing elevation. Therefore there is the potential for ponding on the County Commissioners property to the west, during high rainfall events, where none currently exists. The applicant should consider additional measures in this area, to reduce the risk of off-site ponding. Some measures to consider may include:
 - a. multiple inlets and a storm sewer sized to convey the 100-year frequency runoff from this area to reduce the depth and frequency of off-site ponding,
 - b. a culvert under Flowermound Drive, with an invert elevation set at or below 656.1, to convey the emergency routing to the detention pond without creating ponding on the adjacent property.

Sections 5/6 Stormwater Quality

1. The applicant should include inlet protection for BH42 on the SWPPP. The storm sewer outlet protection should be noted in the legend on the SWPPP sheets.
2. The applicant should still include maintenance guidelines and checklists for all stormwater quantity measures. An estimate of the needed annual assessment for maintenance and inspection of the drainage facilities has been included in the O & M Manual. A breakdown of the expected annual costs should be provided for review to verify the provided estimate.

General Conditions

1. The applicant should submit final certified construction plans and a final certified drainage report that include all revisions.
2. The applicant must present the project at the Tippecanoe County Drainage Board meeting for the project to be considered for approval.
3. The applicant must pay any final drainage review fees per Ordinance 2005-04-CM and submit a letter to the County Surveyor's Office stating that these fees will be paid.
4. The applicant must pay the Phase II stormwater program fees.
5. The applicant must provide proof to the Tippecanoe County Surveyor's Office (TCSO), of the formation of a Homeowners Association (HOA). In addition, a yearly report must be submitted to the TCSO to show that the HOA is still active and to report the amount of assessments collected.
6. The applicant must provide recorded copies of restrictive covenants satisfactory to the Tippecanoe County Drainage Board and the Tippecanoe County Surveyor's Office.

7. (For both Section 5 and Section 6) If no assurance is required under the Unified Subdivision Ordinance, Section 4.1, the Comprehensive Stormwater Management Ordinance of Tippecanoe County (Ordinance) still requires an assurance, made out to the Tippecanoe County Drainage Board, for an amount equal to 100% of the total costs of implementing measures required by Chapters 3, 4, and 5 of the Ordinance. See Chapter 6, Section 7 of the Ordinance for more information.
8. (For both Section 5 and Section 6) The property owner, developer, or contractor shall be required to file a three-year maintenance bond or other acceptable guarantee with the Tippecanoe County Drainage Board, prior to final approval, in an amount not to exceed ten percent (10%) of the cost of the stormwater drainage system located outside the public road right-of-ways. See Chapter 6, Section 9 of the Ordinance for more information.
9. All listed issues must be completely addressed before final plan approval and sign-off will be granted by the County Surveyor's Office.

No error or omission in either the plans, calculations or applications (whether said plans, calculations or applications have been reviewed by the review engineer or not) shall permit or release the applicant and designer from constructing this work in any other manner than that provided for in the County Ordinance.

pc: Vester and Associates

DWE/sdb

M02-038FX4.DOC